

[Claims]

[Claim 1] A rotary electric machine comprising:
a rotary shaft;
a rotor connected to the rotary shaft;
a stator placed opposite the rotor;
an adjusting motor for adjusting relative positions of the rotor and the stator in the direction of the rotary shaft; and
a movable member that is engaged to the rotor and converts the rotation of the adjusting motor into the displacement of the movable member in the direction of the rotary shaft.

[Claim 2] The rotary electric machine according to Claim 1, wherein the rotor of the adjusting motor spirally engages with the movable member to permit relative motion.

[Claim 3] The rotary electric machine according to Claim 1 or 2, wherein the movable member is rotatably engaged to the rotor, and a means is provided for preventing the movable member from rotating together with the rotation of the rotor of the adjusting motor.

[Claim 4] The rotary electric machine according to Claim 3, wherein the movable member engages with the rotation stop member fit around the rotor shaft of the adjusting motor so as to be incapable of making relative rotation around but slidable in the axial direction of the rotor shaft of the adjusting motor.

[Claim 5] The rotary electric machine according to Claim 3 or 4, wherein the rotation stop portion of the rotation stop member is formed in a particular shape in cross section.

[Claim 6] The rotary electric machine according to Claim 3 or 4, wherein opposing surfaces of the movable member and the rotation stop member fixed around the rotor shaft of the adjusting motor are each provided with at least one groove in the direction of the rotor shaft of the adjusting motor, and a ball is placed between each groove on the movable member side and each groove on the rotation stop member side.

[Claim 7] The rotary electric machine according to any one of Claims 2 to 6, wherein the rotor of the adjusting motor is in spiral engagement with the movable member.

[Claim 8] The rotary electric machine according to any of Claims

1 to 7, wherein a resilient member is provided to urge the movable member in the direction of offsetting the force exerted to the movable member due to the magnetic attractive force produced between the rotor and the stator.

[Claim 9] The rotary electric machine according to any of Claims 1 to 8, wherein the adjusting motor is a stepping motor.

[Claim 10] An electric motor vehicle using the rotary electric machine according to any one of Claims 1 to 9 as the driving source.